

# TECHNICAL MEMORANDUM

## Utah Coal Regulatory Program

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May 19, 2005

TO: Internal File

THRU: Peter H. Hess, Environmental Scientist III/Engineering, Team Lead

FROM: Wayne H. Western, Environmental Scientist III/Engineer, Bonding

RE: Pace Canyon Fan Portal, Canyon Fuel Company, LLC, Dugout Canyon Mine, C/007/0039, Task ID #2248

### **SUMMARY:**

The approval of this application will permit two breakout entries in Pace Canyon from the Gilson coal seam. One entry will serve as an intake air portal, also providing machinery access from the mine to the surface disturbance. It will also serve as an emergency escape route for the underground workers. The other opening will be a vertical airshaft, which will connect the underground workings with a ventilation fan located on the surface. This disturbance is necessary to compliment the ventilation requirements of the mine.

The U.S. Department of the Interior, Office of Surface Mining made a determination on January 24, 2005 that this application for a permit revision did not constitute a mining plan modification. The U.S. Forest Service notified the OSM on January 20, 2005 that it had no comments or concerns with the Pace Canyon Fan Portal application. The Bureau of Land Management concurred on January 24, 2005 that the application did not constitute a mining plan action requiring Secretarial approval.

This technical memo will address the adequacy of the responses received relative to the R645 engineering discipline requirements of the Task ID #2104 Technical Analysis.

### **TECHNICAL ANALYSIS:**

## **OPERATION PLAN**

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## **MINING OPERATIONS AND FACILITIES**

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

### **Analysis:**

The requirements of R645-301-231 are relative to soils and will not be addressed here.

The requirements of R645-301-526 and 528 are addressed within the approved mining and reclamation plan. R645-301-526 is specifically addressed in Volume 1, Chapter 5, pages 5-34 through 5-38. The addition of the disturbance relative to the Pace Canyon fan portal is necessary to enhance the underground ventilation system and the requirements mandated by 30 CFR Part 75. The Pace Canyon facility will include a mine ventilation fan with associated ducting, two diesel generators with electrical transformers (to provide emergency / backup power for the fan), an 8,000 gallon diesel fuel storage tank with containment, a ground support system for the portal entry, two topsoil piles, and a sediment trap. There will not be any refuse disposal facilities within this disturbed area, (See Page 5-49 of the application).

Sediment control at the Pace Canyon fan portal facility will be provided by the sediment trap located in the SW corner of the disturbance, as well as alternate sediment control treatments. These treatments will include roughening, seeding and mulching, containment by berms, and the use of gravel or riprap where needed.

### **Findings:**

The minimum regulatory requirements of this section have been met.

## **EXISTING STRUCTURES:**

Regulatory Reference: 30 CFR 784.12; R645-301-526.

### **Analysis:**

The Pace Canyon fan portal facility will be constructed on the NW side of Pace Creek. There is an old mine located on the SE side of the Creek (the Snow Mine). A wooden tippie structure existed here, but has long been dilapidated. The Pace Canyon fan will be constructed within the facilities area of the Snow Mine. In October of 2003, Senco-Phoenix conducted a historic property/cultural resource inventory of the Snow Mine facilities area. The determination made during that evaluation was that the site is of little or no value relative to NRHP criteria.

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The survey is on file with the BLM and/or in the Confidential Binder of the Dugout Canyon MRP (See Chapter 4, page 4-2 of the application).

The BLM permitted a seven-hole exploration-drilling project in the area of the Pace Canyon fan portal in 2003. The purpose of that project was to determine where coal burn existed. Of the six holes that were developed, two were retained for ground water monitoring wells. One of these monitoring wells will be plugged prior to the development of the Pace Canyon fan portal facility (Personal communication with V.S. Miller, CFC, 4/22/2005). The other monitoring well will be consumed by the development of the airshaft.

### **Findings:**

The application meets the minimum regulatory requirements of this section.

## **RELOCATION OR USE OF PUBLIC ROADS**

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

### **Analysis:**

The Pace Canyon Road is noted in the 1980 Carbon County Road Maintenance Agreement with the BLM. The Pace Canyon road is considered a “public” road until it enters the NE1/4SE1/4 of section 25, T13S R12E. At this point, the road crosses a corner of land owned by the heirs of Milton and Ardith Thayn. A private gate, owned / maintained by the Thayn Trust, and located on Thayn land, bars access to the BLM / Thayn surface in the area.

The Pace Canyon fan portal facility will be constructed on surface owned and managed by the Bureau of Land Management. The road that crosses through the proposed disturbed area in Pace Canyon is a BLM road. The BLM has not classified this road, due to its length of pre-existence. The road provides access to the upper elevations of the Roan Cliffs. Thus, this section of the Pace Canyon road is not classified as a “public” road. The requirements of this section are not applicable.

### **Findings:**

The requirements of this section are not applicable.

## **AIR POLLUTION CONTROL PLAN**

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

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### Analysis:

Appendix 7-12 of the application describes the various treatment methods that will be used in order to control sediment (or fugitive dust) from reporting off the Pace Canyon disturbed area. The Dugout Canyon Mine MRP contains the approved information relative to the requirements of R645-301-244 and 301-420 in Volume 1, Chapter 4, section 420, page 4-9. There will be no coal brought out of the Mine at the Pace Canyon location. The only material that might cause air pollution would be fugitive dust from the area. As noted above, this will be addressed by the alternate sediment control treatments that will be utilized.

### Findings:

The minimum regulatory requirements of this section have been met.

## COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

### Analysis:

Coal lease UTU-07064, Stipulation #11 states the following; “in order to avoid surface disturbance on steep canyon slopes and to satisfy the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specifically approved locations”. The application addresses the fact that the airshaft will be driven from the surface in a vertical fashion until the Gilson coal seam is intercepted. It is the Division’s understanding, based on information received from the BLM that the intake portal will be driven from inside the Mine intercepting a full face of coal in the Pace Canyon area.

The submittals received by the Division did not contain a description of how the intake portal would be developed. Based upon the Division’s concern relative to the potential need for a blasting plan to develop this intake portal in coal, the Division discussed with the BLM the need for a definitive plan to address this mine entry development.

The Permittee submitted a request to the USDO / BLM / SLO for a Request for a Minor Modification to the R2P2 (Resource Recovery and Protection Plan) on April 11, 2005. A copy of the Permittee’s cover letter for this Minor Modification was received by the DOGM on April 22, 2005. That letter contains a description of the proposed plan: “it is also planned that the intake portal will be constructed up to and including a full face of coal prior to mine-through. Final mine-through will be accomplished from within the mine and in accordance with the approved MSHA plan.” It can therefore be determined from this description that an explosives blasting plan is not needed to develop the intake portal, and that the previous mandate included

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within Coal lease UTU-07064, Stipulation 11 requiring all breakouts to be made from inside the Mine will be adhered to. The USDOJ / BLM / SLO approved the Minor Modification to the R2P2 on April 22, 2005.

### **Findings:**

The minimum regulatory requirements of this section have been met.

## **SUBSIDENCE CONTROL PLAN**

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

### **Analysis:**

#### **Subsidence Control Plan**

The current subsidence control plan for the Dugout Canyon Mine, as it exists in the MRP, will not be affected, nor will changes to it be required by the development of the underground entries in the Gilson seam to the coal outcrop in Pace Canyon. The purpose of the Pace Canyon fan portal is to enhance the underground ventilation system of the mine, reducing toxic and combustible gas levels to limits acceptable to the U.S. Department of Labor, Mine Safety and Health Administration. The underground entries that are developed to access the portal breakout location will be left in place until the secondary extraction of the last longwall panel in that area is completed. The permittee will then cease operation of the Pace Canyon fan and retreat from the area. It is highly unlikely that the secondary extraction of the pillars developed to access Pace Canyon will occur.

### **Findings:**

The minimum regulatory requirements of this section have been met, based upon a previous determination and approval of the approved subsidence control plan.

## **SLIDES AND OTHER DAMAGE**

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

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### Analysis:

The requirements of this section are addressed within the approved Dugout Canyon Mine MRP, (See Volume 1, Chapter 5, section 515 REPORTING AND EMERGENCY PROCEDURES, page 5-9).

### Findings:

The minimum regulatory requirements of this section have been previously met.

## FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

### Analysis:

#### Protection and Enhancement Plan

The Permittee had a spill prevention control and countermeasure (SPCC) plan in place that met the requirements of 40 CFR Part 112.3. That plan received its most recent P.E. certification on 11/26/2003.

The Division recommended in the deficiencies aired in the Task ID #2104 Technical Analysis that the Permittee modify the in-place SPCC plan for the Dugout Canyon Mine to include the 8,000 diesel fuel storage tank which is being proposed to provide emergency backup ventilation power in the event of a power failure (primary power for the Pace Canyon fan is electrical).

The Permittee submitted an updated SPCC plan to the Division on April 7, 2005 which includes the proposed 8,000 gallon diesel fuel storage tank as well as the two individual storage tanks (1,250 gallon capacity tank / each diesel generator, two generators) and the small amounts of lubricants (tube grease, gear oils, etc.) which are necessary for maintaining the fan.

The Task ID #2104 application indicates that there will be two ways in which water may be discharged from the Pace Canyon fan portal disturbed area. The first is via a discharge from the proposed sediment trap located in the southern end of the disturbance. The second will be a mine water discharge point which will provide a secondary outfall to discharge mine water intercepted underground. Please refer to the discussion in Chapter 7, page 7-55, section 733.100 Hydrologic-Balance Protection of the application.

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The application mentions that outfalls will only occur in accordance with an approved UPDES permit issued by the Utah Division of Environmental Quality / Division of Water Quality. Thus, it is necessary for the permittee to amend the current UPDES permit and apply for two additional outfall locations in the Pace Canyon area.

In order to attempt to fulfill the requirements of R645-301-751, Water Quality Standards and Effluent Limitations, the Division requested that the permittee place a copy of the application cover letter to the DEQ / DWQ requesting the amendment to permit additional outfall(s) for the Pace Canyon facility.

The Permittee's March 30, 2005 response (Task ID #2193) contains the cover letter to DEQ/DWQ requesting an amending of the current UPDES permit to include the additional outfall(s) necessary to discharge treated surface runoff and mine water from the Pace Canyon facility in a compliant manner.

The Permittee is aware that no water volumes can be discharged from the Pace Canyon facility until an approved "revised" UPDES permit is in place for the additional proposed outfall(s). The permittee has applied for and received a storm water discharge permit (UTR104262) to cover construction discharge. Therefore, an approved UPDES permit is not needed for the Pace Canyon fan portal site until the construction activities are completed.

### Findings:

The Permittee's response to the deficiencies aired under **R645-301-333**, SPCC plan, and **R645-301-751**, application to amend the current UPDES permit, is adequate and meets the minimum regulatory requirements of the R645 coal rules.

## ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

### Analysis:

#### Road Classification System

The road that provides surface access to the Pace Canyon area is on Bureau of Land Management surface. It is the Permittee's intent to relocate this road approximately 30 to 50 feet to the SE for a length of approximately 550 feet, in order to construct a pad large enough to accommodate the facilities associated with the Pace Canyon fan portal.

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The 550-foot roadway length will be inside of the disturbed area being permitted for underground coal mining and reclamation purposes. For ease of permitting, the 550-foot length of road will be classified as a “primary” road, as it will be retained (although relocated) to provide access for the approved post-mining land use of the area.

During the operational phase of the Pace Canyon facility, most of the access to the disturbed area will occur from inside the Dugout Canyon Mine. The road may see minimal use for mining activities during this phase. Machinery access for the construction phase and the demolition / reclamation phase of this facility will be conducted via this BLM road. Upon completion of these activities, the only traffic on the road will be for access to the Roan Cliffs, or occasional mine-related business.

### **Plans and Drawings**

The applications received contain Plates PC5-2, Surface Facilities (plan view and cross sections); Plate PC5-4, Pace Canyon Fan Existing Surface Topography; Plate PC5-5, Pace Canyon fan Reclamation Topography (and cross sections); and Plate PC5-6, Pace Canyon Fan Reclamation Treatment Map.

Plate PC5-2, Surface Facilities, shows the original location and the proposed (re-located) location of the Pace Canyon road.

Plate PC5-4, Pace Canyon Fan Existing Surface Topography depicts two locations where coal waste generated by the pre-SMCRA Snow Mine was deposited.

Plate PC5-5 shows the road location after the reclamation of the fan portal pad area has been completed.

Plate PC5-6 depicts the area of the Pace Canyon Fan Portal reclamation that will utilize various methods of treatment to minimize erosion and prevent additional contributions of sediment to Pace Creek, and its subsequent drainages.

The permittee has completed a cross section for the 550-foot length of road that is to be constructed. This section, FIGURE PC-1, is contained in Appendix 5-10 of the application. The cross section depicts a level fifteen-foot travel way width, with surfacing material being native soils, or gravel. Gravel will only be utilized if it is needed to create a drivable surface. An engineering note was added to Figure PC-1 with the 4/18/2005 submittal indicating that the lateral slope of the Pace Canyon road in the vicinity of each of the designed water bars is to be established at a gradient of 1 % to 3 %, such that precipitation intercepted by the 15 foot by 200 foot watershed is coursed into a vegetated or armored area (refer to the water bar discussion below).



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Relative to the drainage of precipitation intercepting the road surface, a berm is depicted on the side of the road that parallels the east side of the disturbed area. A boulder retaining wall is depicted on the Pace Creek side of the relocated road, and this wall will extend from the North gate to the location of the discharge culvert from the sediment trap. These devices give the impression that the road surface will act as a "channel", routing all runoff intercepted by the road surface through a 420 foot length of the relocated road.

Appendix 7-12, section -742.400 Road Drainage, page 7-12-14 contains a commitment by the permittee to maintain the re-aligned road segment as well as the remainder of the road located above and below the Pace Canyon fan portal disturbance. This is essentially the same commitment required by R645-301-527.240, and is contained within the approved MRP, (Volume 1, Chapter 5, Road Maintenance, page 5-45).

The Task ID #2193 submittal received by the OGM contains a revised Plate PC5-2. This Plate, and Plates PC7-5, and PC7-5A depict the location of three water bars along the 550-foot roadway length included within the Pace Canyon disturbed area. A verbal description of the design used to control intercepted runoff on the 550-foot roadway length is contained on Page 7-91 of the March 30, 2005 submittal. Appendix 7-12 contains a professional engineer's design for the water bars, which are to be incorporated. The design specifications for the water bars are as follows:

- 1) The lateral slope of the road should not be less than 1% or more than 3% (in the area of each water bar location).
- 2) The slope leading up to the water bar and down to the water bar swale should not exceed 5:1 (longitudinal road gradient).
- 3) The depth of the water bar should be 6 inches (from the top of the crest to the bottom of the swale).
- 4) The water bars should be constructed such that the water bar allows the runoff to flow completely off the road into a vegetated or stabilized area.

The water bars have been located to be approximately two hundred feet apart. Thus, the watershed reporting flow to each would be 200 feet by 15 feet or 0.068 acres.

The Permittee has submitted a runoff control plan to effectively drain and minimize the erosion of the 550-foot roadway length to the extent possible, (See R645-301-512.250, R645-742.423.1, -742.423.2, and -742.423.3). The drainage specifications are described in the application.

### Performance Standards

Plate PC5-5 shows that the Pace Canyon road will once again be relocated as part of the reclamation phase of the fan portal facilities. As depicted, the reclaimed / relocated road will run

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in more of a straight line. Relocating the road will also move the road further to the west, away from Pace Creek, and provide greater stability of the roadway surface. This may minimize the tendency for Pace Creek to undercut the east bank and eventually the road surface.

### **Primary Road Certification**

The Pace Canyon road is a pre-SMCRA road that will be retained post-mining in order to provide access to the Roan cliffs such that the approved post-mining land use can be implemented. The use of this road for mining purposes during the coal extraction process (coal or refuse will not be hauled on this road) will be minimal. The road has been classified as a “primary” road. Figure PC-1 contains a P.E. certification by a Utah registered professional engineer.

### **Other Transportation Facilities**

The minimum regulatory requirements of this section have been previously addressed within this document, or they have been addressed elsewhere within the approved mining and reclamation plan.

### **Findings:**

The application meets the requirements of **R645-301-527.210**, and **R645-301-742.420** et al.

## **SPOIL AND WASTE MATERIALS**

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

### **Analysis:**

#### **Disposal Of Noncoal Mine Wastes**

The requirements of this section have been previously addressed by the Dugout Canyon Mine MRP, (See Volume 1, Chapter 5, section 528.300, page 5-48).

#### **Coal Mine Waste**

As previously noted, two breakouts will be developed in the outcrop of the Gilson seam to install the Pace Canyon Fan portal. This will generate mine development waste material in the

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form of oxidized / burnt coal, burnt material above the coal seam, sandstone material, etc. Chapter 5, page 5-49, Underground Development Waste (Task ID #2104 application) contains the following commitment; “material such as subsoil and rock generated during construction of the shaft and portal at the Pace Canyon Fan site will be used to construct the site. The layout for the shaft and portal has been designed to avoid oxidized or burnt coal, however, should it be encountered during construction these materials will either be hauled to a waste rock facility for permanent disposal or stored underground, upon approval by MSHA.”

### **Refuse Piles**

There will be no refuse piles within the Pace Canyon fan portal surface disturbance.

### **Findings:**

The minimum regulatory requirements of this section have been met.

## **SUPPORT FACILITIES AND UTILITY INSTALLATIONS**

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

### **Analysis:**

The purpose of the proposed Pace Canyon fan portal facility is to enhance the ventilation system of the underground workings of the Dugout Canyon Mine. The permittee has determined that it is necessary to do this in order to enhance safety and meet ventilation requirements mandated by 30 CFR Part 75. Thus, the Pace Canyon facility is a support facility for the underground coal extraction process.

The application received on February 8, 2005 describes how the utility requirements of the proposed fan installation will be met. Primary electrical power for the fan installation will be provided by a high voltage electrical cable routed from the main mine facilities area (located in Dugout Canyon) through the underground workings to the Pace Canyon breakout. Auxiliary power will come from one of two diesel generators, as depicted on Plate PC5-2. The generators are described as trailer-mounted units located inside a concrete containment. Fuel for the diesel engines will be stored in an 8,000-gallon tank, which will also be contained within a concrete structure of adequate retention capacity. The containments for the dual generators and the diesel fuel will be housed within a concrete building structure, (See Pace Canyon Fan portal application, Chapter 5, page 5-35, section 526.200, Utility Installation and Support Facilities).

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The application indicates that an airshaft having a seventy-foot depth will be constructed to connect the Gilson seam mine workings with the ventilation fan ducting. The application indicates that this shaft will be lined with either concrete or steel plate.

Chapter 5, page 5-50, section **529 Management of Mine Openings** indicates the following; “a fence will be installed to surround the Pace Canyon fan facilities to assist in managing the mine openings, refer to Figure PC-3 in Appendix 5-10 for the approximate location of the fence.” The Task ID #2193 submittal received on March 30, 2005 contains a generic description of the fence installation which will be installed at the Pace Canyon facility to prevent unauthorized access to the underground Mine workings by individuals / livestock. This description is provided on the revised Page 5-50. A revision submitted on April 22, 2005 by the Permittee at the request of the BLM incorporated two minor text revisions. The finalized version of the fence description contains the following commitments; “two types of fence will be used at the Pace Canyon site, both fences will be eight feet tall, one will be constructed of chain link, the other will be field fence. The field / wildlife fence will be constructed using specifications obtained from the Utah Division of Wildlife Resources (See 4/25/2005 submitted information). All dimensions are approximate, due to variable supplies/suppliers and terrain.

- USE: Exclude wildlife, livestock and unauthorized individuals
- WIRE: Woven mesh 6 to 8 inch spaced verticals. Single row barbed wire at top of woven mesh. Two pieces of woven mesh will be spaced vertically on top of one another and attached to the post. The height at the top of the mesh will be 91 inches, with the barbed wire placed 5 inches above the top of the mesh. (96 inches or 8 feet).
- POSTS: Spaced every 10 feet, four metal posts, with every fifth post being 6 inches diameter (wood).
- HEIGHT: 96 inches at top of barbed wire.
- H-BRACES: Every 200 feet and at corners.

Specifications for the chain link portion of the Pace Canyon fan installation were obtained from the Internet, specifically Master-Halco Anchor Fence Products.

- USE: Exclude wildlife, livestock and unauthorized individuals
- WIRE: Standard Industrial MESH, 2 inch, (50mm) MESH, 10 gauge, ((0.135 inches, (3.43 mm)).
- POSTS: Terminal (over 6 foot length, Type 1 round pipe) (end, corner, and pull posts) 2.875 inch diameter. Line posts (over 6 foot length, Type 1, round pipe) (fabric support posts) 2.375 inches every ten feet
- HEIGHT: 8 feet, 0 and 5/8 inches (96 and 5/8 inches, with single strand of barb wire).
- H-BRACES: None; all posts set in ground approximately 3 feet.

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Since the facilities are behind a locked gate, barbwire is optional for the top of the chain link. Figure PC-3 (Task ID #2104 submittal, January 4, 2005) depicts the location of the proposed fence; the figure is P.E. certified by Mr. Layne Jensen, Utah registered professional engineer.

The Permittee has adequately addressed the deficiency aired under R645-301-526.220 of the March 8, 2005 Division deficiency document.

### Findings:

The application meets the minimum regulatory requirements of **R645-301-526.220**.

## SIGNS AND MARKERS

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

### Analysis:

The requirements of this section are addressed within the approved mining and reclamation plan for the site. The permittee is fully aware of the requirements of this section as they relate to permittee identification, disturbed area perimeter markers, stream buffer zones, etc.

### Findings:

The minimum regulatory requirements of this section are adequately addressed by the commitment made within the approved mining and reclamation plan.

## USE OF EXPLOSIVES

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

### Analysis:

#### General Requirements

The Permittee indicates that it may be necessary to use explosives during the construction phase of the Pace Canyon facilities. Before any blast occurs the Permittee must have the blasting plan approved. R645-301-524.220, allows the Permittee to submit a blasting plan after the submittal is approved but before blasting takes place.

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### Findings:

The minimum regulatory requirements of R645-301-524.100 through -524.700 have been addressed for the development of the airshaft.

## MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### Analysis:

#### Affected Area Maps

The application contains Plate PC5-2, Pace Canyon Fan Surface Facilities and Cross Section Locations. The plate gives a plan view of the surface facilities depicting the acreage to be included within the disturbance. This is the affected area.

#### Mining Facilities Maps

The application contains Plate PC5-2, Pace Canyon Fan Surface Facilities and Cross Section Locations. The plate gives a plan view of the surface facilities depicting the proposed location of the topsoil storage pile, air shaft/fan location, generator location, mine portal, sediment containment, and realigned road surface.

#### Mine Workings Maps

The application contains Figure PC-2, GILSON SEAM MINE WORKINGS, which depicts how the yet to be developed entries in the Gilson seam will be developed such that they intercept the Pace Canyon air shaft and portal entry.

Figure PC-2 is “not to scale” (NTS), as shown in the legend of the Figure. Although Figure PC-2 appears to be the same scale as PLATE PC5-2, (60 feet / inch), this needs to be made clear.

Figure PC-2, (Appendix 5-10, as contained within the Task ID #2104 submittal) had not addressed whether the fan would have an evase and / or use a technology to reduce the decibel level reporting to the adjacent surroundings. Because the fan is close to the Pace Canyon road, the Division was concerned as to whether a method for decibel reduction had been addressed by the applicant. The Division recommended an elevation view of the construction, including

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specifications for the diesel tank and the diesel tank containment. A detailed drawing showing the electrical requirements and layout of the transformers, switch gears, and capacitors was noted as being needed. Although the application states that primary electrical power will be delivered via a high voltage cable coming from Dugout Canyon through the underground workings, there are no utility drawings or text describing how the electrical lines or diesel fuel lines will be routed (i.e., buried lines, or suspended lines on the surface). The revisions received on April 18, 2005 (Task ID #2193) contain a colored photograph of the fan installation that is very similar to the installation that will be built at Pace Canyon. Revised text received with the same revision submittal (4/18/2005) indicates on Page 5-16, Chapter 5, (Task ID #2193) indicates the following; “the fan ducting is equipped with a vertical evase (diffuser) to assist in reducing noise associated with the operation of the fan”.

The Permittee’s response dated March 30, 2005 does not contain a detailed drawing showing the electrical requirements and layout of the transformers, switch gears, and capacitors. Although the application states that primary electrical power will be delivered via a high voltage cable coming from Dugout Canyon through the underground workings, there are no utility drawings or text describing how the electrical lines or diesel fuel lines will be routed (i.e., buried lines, or suspended lines on the surface). The Division feels that this deficiency can be addressed with the submittal of “As-Built” drawings for the Pace Canyon facility; therefore, the previously aired deficiency relative to utility line locations, switch gears and capacitors will be addressed upon completion of the construction project.

### **Certification Requirements**

Plate PC5-2 is certified by Mr. Layne Jensen, a Utah registered professional engineer.

Figure PC-2 (Appendix 5-10) is not P.E. certified. R645-301-512.110 requires “mine workings to the extent known” must be certified. However, Figure PC-2 depicts the “proposed mine workings”; therefore P.E. certification is not required at this time.

### **Findings:**

The minimum regulatory requirements of this section have been met. In accordance with R645-301-526.222, the permittee must submit drawings, text, etc., to meet the description requirement for the Pace Canyon facility in the “As-Built” information.

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### GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

#### Analysis:

The general requirements mandated by R645-301-761 stipulate that “before abandoning a permit area or seeking bond release, the operator will ensure that all temporary structures are removed and reclaimed, and that all ... and treatment facilities ... meet the requirements of the approved reclamation plan”.

The Pace Canyon fan portal facility will utilize a sediment trap, and alternate sediment control treatments to minimize “to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area”. Plate PC7-5A depicts the extensive use of gravel on the flat areas of the Pace Canyon fan portal facility. The Division deficiency response generated on March 8, 2005 contained a deficiency relative to **R645-301-761**. The Division wanted a commitment from the Permittee “to strip the gravel associated with the sediment control method within the disturbed area prior to topsoil replacement for final reclamation. The gravel disposal should be in the permittee’s approved waste rock disposal site”. The Task ID #2193 response (March 30, 2005 submittal) contains the following response in Section 529, Page 5-50, Management of Mine Openings, and paragraph two. “At the Pace Canyon Fan Portal facilities the gravel associated with sediment control of the site will be placed in the shaft for disposal during reclamation of the site”. Although the Division’s March 8, 2005 deficiency stated that the Permittee’s commitment for disposal must commit to final placement of this gravel in the approved waste rock facility, the commitment to place same in the airshaft backfill volume is adequate to meet the minimum regulatory requirements of **R645-301-761**.

#### Findings:

The application meets the minimum regulatory requirements of **R645-301-761**.

### APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.



## Analysis:

Chapter 5, page 5-75, section **553.100 Disturbed Area Backfilling and Grading**, Approximate Original Contour, indicates that due to extensive pre-SMCRA development of the Pace Canyon area for road development, logging and coal mining activities, there are no maps depicting pre-development surface topography. Plate PC5-2 depicts the surface topography of the area, as it exists today, including the road, and the current configuration of the Pace Creek drainage. The application indicates, "The reclamation plan has been prepared to achieve the assumed approximate original contour and eliminate any highwalls and cutslopes."

Plate PC5-5 depicts one lateral cross section, B-B', and two longitudinal cross sections. Longitudinal cross-section A-A' runs parallel through the center of the Pace Canyon fan portal intake entry on an approximate bearing of N 6 degrees 30 minutes E. Cross section C-C' similarly runs in a NE direction, and nearly parallels the configuration of the relocated, reclaimed BLM road. The approximate bearing of C-C' is N 20 degrees E.

Section A-A' (PC5-5) depicts both the operational surface contour (red line) and the reclamation surface contour (the blue line). With the exception of the fill that will be necessary to backfill the portal, the final reclamation surface contour will nearly parallel the operational surface. A shallow cut approximately 135 feet in length at the southern end of A-A' will provide most of the fill for the portal area. The portal fill will taper from zero depth to about sixteen feet (maximum depth) at the face-up (location of coal outcrop/surface interface). A very shallow cut approximately seventy feet in length (above the backfilled portal) will provide the remaining fill for this cross-section. The reclamation cross section depicted very nearly parallels the pre-SMCRA / post mining configuration which existed in this area prior to the Pace Canyon fan portal development.

Section B-B' is the lateral cross section which bisects the fan portal pad. Its location is depicted 105 feet SSW of the airshaft location. B-B' depicts one cut and one fill to reclaim the operational pad. At B-B', the cut will relocate the road approximately thirty feet to the west. The final surface configuration of the cut will be at a 2.4H / 1V slope. The fill which is required to reclaim the cut bank in the section will be reclaimed at a 3.47 H / 1V grade. The crest of this fill is about forty feet east of the disturbed area perimeter. The undisturbed slope between the crest of the fill and the disturbed area boundary rises at a 1.34 H / 1V slope. Although the grades which will be established in the reclaim area are much more gentle than the slope of the undisturbed area, the transition depicted by cross-section B-B' is aesthetically pleasing, and appears to be capable of exceeding the required minimum long-term static safety factor of 1.3.

Section C-C' is, as noted above, a longitudinal cross section which nearly parallels the relocated / reclaimed Pace Canyon road (section of BLM road through the disturbed area). As depicted on Plate PC5-5, two small cuts, and two small fills will be utilized in the reclamation of the fan portal pad through this section. The overall slope of the pad through section C-C'

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between the disturbed area perimeter markers is 12.8 H / 1V. The two cuts that will be made are shallow (7 foot maximum depth). The larger of the two fill areas will have a maximum depth of ten feet, over a 140-foot length.

All cuts and fills will conform with the existing shape of the area, and will be aesthetically pleasing. All fills are on a gentle slope. As noted in Appendix 2-9, Topsoil Calculations, General, “the angle of repose for soils in this area are in excess of 50 degrees”, (or these soils will remain static on slopes steeper than 1H / 1V (45 degrees)). As noted above, the meeting of the angle of repose / long-term static safety factor of 1.3 requirement is likely.

### Findings:

The minimum requirements of this section have been adequately addressed.

## BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

### Analysis:

#### General

Chapter 5, section 553.100 Disturbed Area Backfilling and Grading, page 5-75, paragraph five discusses the general backfilling and grading criteria that will be implemented in the reclamation of the Pace Canyon fan portal area. “In Pace Canyon reclaimed slopes will be at a 2H: 1V slope or less over most of the site. However, there will be some small areas where the slope may be up to 1.6H: 1V. This will only occur in areas where the reclaimed surface ties into an undisturbed area with a slope greater than 2H: 1V.”

Analysis of PLATE PC5-5, (See Appendix 5-10), sections A-A', B-B', and C-C' reveals that only small amounts of fill material will be utilized to return the Pace Canyon fan portal area disturbance to approximate original contour. Coal mining activities were initiated in both Dugout Canyon and Pace Canyon long before the passage of SMCRA. Hence, there are no pre-mining surface contour maps of these areas. As noted within the application, the Snow Mine was known to report coal extraction as early as 1906. The Pace Canyon fan portal facility is inside the area of pre-law disturbance created by the Snow Mine. Chapter 5, page 5-3 states that “the pre-mining (post SMCRA) topography for the Pace Canyon Fan Portal site can be seen on Plate PC5-4 in Appendix 5-10”.

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The Permittee's response to the March 8, 2005 deficiency document (Task ID#2193 submittal) contains mass balance calculations for the reclamation cuts and fills (See Appendix 5-6, Reclamation Bond Estimate, Pages 3, 4, and 5, EARTHWORK, Material Handling Assumptions, and Productivity Calculations. This information is necessary for determining an accurate reclamation bond for the proposed disturbance.

Please refer to the analysis in the previous section, **APPROXIMATE ORIGINAL CONTOUR RESTORATION**. These comments are also applicable to this section, and assist in meeting the minimum regulatory requirements for backfilling and grading.

### Findings:

The minimum regulatory requirements of this section have been adequately addressed.

## MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

### Analysis:

The Pace Canyon fan portal application specifically addresses how the two openings will be sealed and backfilled in Chapter 5, page 5-49. "Material such as subsoil and rock generated during construction of the shaft and portal at the Pace Canyon Fan Portal site will be used to construct the site. This material will be used to backfill the portal and shaft during reclamation." However, if the mine development waste is to be re-used for backfilling purposes, the permittee must provide a method to identify this material by either storing it in a specific location (which is identifiable by some means) in the field, or by segregating it.

Seal construction for all underground openings associated with the Dugout Canyon Mine is discussed in the Mine's MRP, Volume 1, Chapter 5, page 5-72, section **542.700 Final Abandonment of Mine Openings and Disposal Areas**. As the Gilson seam dips away from the Pace Canyon portal, it appears unlikely that a hydrostatic seal would ever be necessary here. However, concerns aired by the BLM (See Division deficiency document dated March 8, 2005) indicate that a Mine map showing the final piezometric water level is necessary in order to support whether or not a hydrostatic seal is necessary here. The submittal of this maximum water level information will be followed through upon completion of the Pace Canyon construction activities.

The last paragraph contained on page 5-72 discusses the approved alternative to the solid concrete block seal; "alternatively, a cast-in-place MSHA approved seal will be installed with a

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minimum thickness of 3 feet and with a minimum compressive strength of 200 psi”. This seal construction description is approved by the Division for implementation. As a final note, prior to any portal sealing, MSHA approval of the seal construction method must be approved prior to any activity by the permittee.

### **Findings:**

The application meets the minimum regulatory requirements for sealing the two underground openings.

## **ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

### **Analysis:**

#### **Retention**

As previously described, the Pace Canyon road existed for many years prior to the development of the Dugout Canyon Mine, providing access to the Roan Cliffs for cattle herding, timbering and coal mining. Although the disturbed area that will be created for the Pace Canyon fan portal is located on BLM surface, the road provides access to private lands owned by the heirs of Milton and Ardith Thayne. Therefore, the road will be retained for use of the private landowners and the BLM long after completion of the mining activities.

### **Findings:**

The minimum regulatory requirements of this section have been met.

## **MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

### **Analysis:**

### **Affected Area Boundary Maps**

Plate PC5-5, **Pace Canyon Fan Reclamation Topography and Cross Sections** depicts the plan or aerial view reclamation topography of the Pace Canyon fan portal area, with the designated disturbed area. The disturbed area is the affected area.

### **Bonded Area Map**

Plate PC5-5, **Pace Canyon Fan Reclamation Topography and Cross Sections** depicts the plan or aerial view reclamation topography of the Pace Canyon fan portal area, with the designated disturbed area. The disturbed area and its associated reclamation will be bonded for in the final reclamation costs.

### **Reclamation Backfilling And Grading Maps**

Plate PC5-5, **Pace Canyon Fan Reclamation Topography and Cross Sections** depicts the plan or aerial view reclamation topography of the Pace Canyon fan portal area, with three cross sections (which have been previously discussed). The plate is P.E. certified by Mr. Layne Jensen, a Utah registered professional engineer.

### **Final Surface Configuration Maps**

Plate PC5-5, **Pace Canyon Fan Reclamation Topography and Cross Sections** depicts the plan or aerial view topography; this is the “proposed” final surface configuration.

“As-builts” of the final surface configuration will be required following reclamation of the site.

### **Certification Requirements**

Plate PC5-5 is P.E. certified by a Utah registered professional engineer.

## **BONDING AND INSURANCE REQUIREMENTS**

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

### **Analysis:**

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**Determination of Bond Amount**

During the analysis of Task ID #2248, Pace Canyon fan portal, the Division evaluated the reclamation cost estimate. The Division determined that the reclamation for the entire permit area would cost \$2,400,000 in 2007 dollars. The current bond amount is \$2,400,000 so no change to the bond is needed.

Direct reclamation costs for the Pace Canyon Portal are as follows:

- Demolition .....\$55,231
- Earthwork.....\$19,979
- Revegetation .....\$7,358
- Total .....\$82,568

**Findings:**

The information in the bonding section of the MRP is adequate to meet the minimum requirements of this section.

**RECOMMENDATIONS:**

Amendment is recommended for approval.